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EXAMINER	
FINDLEY, CHRISTOPHER G	

ART UNIT	PAPER NUMBER
2621	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No.	Applicant(s)	
	10/660,619	SEO ET AL.	
	Examiner	Art Unit	
	Christopher Findley	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-13 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-13 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 12/06/2006.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. **Claims 9-13 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.**

Independent claim 9 recites "A serial data format structure comprising..." that fails to meet the statutory requirement set forth in the Interim Guidelines, Annex IV (a) and (b):

(a) Functional Descriptive Material: "Data Structures" Representing Descriptive Material Per Se or Computer Programs Representing Computer Listings Per Se

Data structures not claimed as embodied in computer-readable media are descriptive material per se and are not statutory because they are not capable of causing functional change in the computer.

The program has to be embodied in a computer readable medium. Claim 9 fails to recite this aspect.

(b) Nonfunctional Descriptive Material

Nonfunctional descriptive material that does not constitute a statutory process, machine, manufacture or composition of matter and should be rejected under 35

U.S.C. § 101. Certain types of descriptive material, such as music, literature, art, photographs and mere arrangements or compilations of facts or data, without any functional interrelationship is not a process, machine, manufacture or composition of matter.

Claim 9 should be rewritten as either a method for encoding a video signal conforming to the data format structure presently described, or an apparatus which utilizes a computer readable medium containing video data conforming to the data format structure presently described, or a computer readable medium stored thereon a computer executable program with steps directed to encoding a video signal in the data format structure presently described.

Claims 10-13 are dependent upon claim 9.

Appropriate corrections to the claims and supporting specification are required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uchida et al. (US 20020172154 A1) in view of Takeuchi et al. (US 6618095 B1).

Re claim 1, Uchida discloses a serial data conversion apparatus comprising: a video signal packet conversion unit for converting a characteristic signal of a video

signal into a video signal characteristic packet (Uchida: paragraph [0019]) and simultaneously converting a video signal into a video signal packet by the characteristic signal of a video signal (Uchida: Fig. 5; paragraph [0021]); and a control signal packet conversion unit for converting a control signal into a control signal packet by an informing signal which informs a generation of a control signal (Uchida: paragraph [0034]). However, Uchida does not specifically disclose conversion into a video signal packet by horizontal/vertical synchronization signals, and a video clock signal or an audio signal packet conversion unit for converting a characteristic signal of an audio signal into an audio signal characteristic packet and simultaneously converting an audio signal into an audio signal packet by the characteristic signal of an audio signal, left/right control signals, and an audio clock signal. However, Takeuchi discloses a device for serial digital interface transmission/reception, which utilizes horizontal/vertical synchronization signals (Takeuchi: Fig. 4, horizontal timing signal and vertical timing signal), and a video clock signal (Takeuchi: Fig. 4, clock of video signal). Takeuchi also discloses an audio signal packet conversion unit for converting a characteristic signal of an audio signal into an audio signal characteristic packet and simultaneously converting an audio signal into an audio signal packet by the characteristic signal of an audio signal (Takeuchi: Fig. 16(B); column 15, lines 7-9), left/right control signals(Takeuchi: Figs. 16(B) and 17, Takeuchi includes audio packets and when the audio is in stereo or surround sound it is conventional to separate the audio into left and right channels, as is well known in the art), and an audio clock signal (Takeuchi: column 15, lines 7-9). Since both Uchida and Takeuchi relate to serializing video signals, one of ordinary skill

in the art at the time of the invention would have found it obvious to combine their teachings in order to allow standard definition video signals to be transmitted through an interface intended for high definition video signals (Takeuchi: column 4, lines 44-46). The apparatus of Uchida, now implemented in conjunction with the apparatus of Takeuchi, has all of the features of claim 1.

Re claim 2, the apparatus of Uchida, now implemented in conjunction with the apparatus of Takeuchi, discloses a video signal characteristic recognizing unit for recognizing video signal characteristics by a characteristic signal of a video signal and generating a video signal characteristic packet (Uchida: paragraph [0021]); a video signal control unit for generating a header and a tail of a video signal by video signal characteristics recognized by the video signal characteristic recognizing unit (Uchida: Fig. 1, the data packets contain a header at the beginning of the packet and a check sum (CS), which is located at the end of the packet), horizontal/vertical synchronization signals (Takeuchi: Fig. 6, horizontal and vertical timing signals of the video signal), and a video clock signal (Takeuchi: Fig. 6, clock of video signal) and simultaneously controlling a storage and an output of a video signal (Uchida: paragraph [0019]); a video signal memory unit for storing and outputting a video signal by a control of the video signal control unit (Uchida: paragraph [0019], buffer memory 24); and a multiplexer for selecting a header and a tail of the video signal control unit and a video signal of the video signal memory unit by a control of the switching control unit and thus generating a video signal packet (Uchida: paragraph [0019], multiplexing section 26), as in the claim.

Re claim 3, the apparatus of Uchida, now implemented in conjunction with the apparatus of Takeuchi, discloses an audio signal characteristic recognizing unit for recognizing audio signal characteristics by a characteristic signal of an audio signal and generating an audio signal characteristic packet (Takeuchi: Fig. 17, audio signal input to the interface formatting circuit 120); an audio signal control unit for generating a header and a tail of an audio signal by audio signal characteristics recognized by the audio signal characteristic recognizing unit, left/right control signals, and an audio clock signal and simultaneously controlling a storage and an output of an audio signal (Takeuchi: Fig. 17, control circuit 2 controls the interface formatting circuit 120, which formats the audio signal); an audio signal memory unit for storing and outputting an audio signal by a control of the audio signal control unit (Uchida: Fig. 2, buffer memory 24); and a multiplexer for selecting a header and a tail of the audio signal control unit and an audio signal of the audio signal memory unit by a control of the switching control unit and thus generating an audio signal packet (Uchida: paragraph [0019], multiplexing section 26), as in the claim.

Re claim 4, the apparatus of Uchida, now implemented in conjunction with the apparatus of Takeuchi, discloses a control signal control unit for generating a header and a tail according to an informing signal of a control signal (Uchida: Fig. 1, the data packets contain a header at the beginning of the packet and a check sum (CS), which is located at the end of the packet) and controlling a storage and an output of a control signal (Uchida: paragraph [0019]); a control signal memory unit for storing and outputting a control signal according to a control of the control signal control unit

(Uchida: paragraph [0019]); and a multiplexer for selecting a header and a tail of the control signal control unit and a control signal of the control signal memory unit by a control of the switching control unit and thus generating a control signal packet (Uchida: paragraph [0019]), as in the claim.

Re claim 5, arguments analogous to those presented for claim 1 are applicable to claim 5, and additionally the apparatus of Uchida, now implemented in conjunction with the apparatus of Takeuchi, discloses a multiplexer for switching and selecting the video signal characteristic packet, the video signal packet, the audio signal characteristic packet, the audio signal packet, and the control signal packet by a certain format structure (Uchida: paragraph [0019]; Fig. 7, data is multiplexed); a switching control unit for controlling a conversion of the video signal packet, the audio signal packet, and the control signal packet and controlling a switching operation of the multiplexer (Uchida: paragraph [0019]); an encoder for encoding an output signal of the multiplexer (Uchida: paragraph [0019]); a parallel/serial conversion unit for converting an output signal of the encoder into serial data (Takeuchi: Fig. 1, P/S converting circuit 130); and an optical signal transmitting unit for converting serial data converted at the parallel/serial conversion unit into an optical signal and then transmitting (Takeuchi: column 21, lines 63-64), as in the claim.

Claim 6 has been analyzed and rejected with respect to claim 2 above.

Claim 7 has been analyzed and rejected with respect to claim 3 above.

Claim 8 has been analyzed and rejected with respect to claim 4 above.

Re claim 9, the apparatus of Uchida, now implemented in conjunction with the apparatus of Takeuchi, discloses a plurality of video signal packets including a header and a tail for informing a start and an end of a video signal of a first horizontal line (Uchida: Fig. 1, the data packets contain a header at the beginning of the packet and a check sum (CS), which is located at the end of the packet); an audio signal packet including left/right audio signals (Uchida: Fig. 7, the "Structure of DIF Sequence" level contains an audio/video section, when the audio is in stereo or surround sound it is conventional to separate the audio into left and right channels, as is well known in the art); a control signal packet including a control signal (Uchida: paragraph [0034]); a video signal characteristic packet including resolution information of a video signal (Uchida: Fig. 5; paragraph [0021]); and an audio signal characteristic packet (Takeuchi: Fig. 16(B)) including left/right control signals of an audio signal (Takeuchi: Fig. 17, audio signal input to the interface formatting circuit 120; when the audio is in stereo or surround sound it is conventional to separate the audio into left and right channels, as is well known in the art) and frequency information of an audio clock signal (Takeuchi: Fig. 16(B), the packet contains audio clock phase information), as in the claim.

Re claim 10, the apparatus of Uchida, now implemented in conjunction with the apparatus of Takeuchi, discloses tat the audio signal packet, the control signal packet, the video signal characteristic packet, and the audio signal characteristic packet are formed between the plurality of video signal packets (Uchida: Fig. 7, in the "DIF Block" layer, the audio blocks, the auxiliary blocks (which act as characteristic data) and the

subcode blocks (which act as control data), are formed between the plurality of video blocks in a DIF sequence), as in the claim.

Re claim 11, the apparatus of Uchida, now implemented in conjunction with the apparatus of Takeuchi, discloses that the plurality of video signal packets are provided with a blanking header in case that a video signal is in a blanking block, and are provided with an active header a in case that a video signal is in an active block (Uchida: paragraph [0038]), as in the claim.

Re claim 12, the apparatus of Uchida, now implemented in conjunction with the apparatus of Takeuchi, discloses that the audio signal packet, the control signal packet, the video signal characteristic packet, and the audio signal characteristic packet include a header and a tail, respectively (Uchida: Fig. 1, the data packets contain headers at the beginning of the packets and a check sum (CS) at the end of the packets), as in the claim.

Re claim 13, the apparatus of Uchida, now implemented in conjunction with the apparatus of Takeuchi, discloses that an arrangement order of the audio signal packet, the control signal packet, the video signal characteristic packet, and the audio signal characteristic packet can be respectively changed (Uchida: paragraphs [0016]-[0017]), as in the claim.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

a. Digital serial data interface

Fujisaki (US 5903569 A)

b. Method and apparatus for embedding digital audio data in a serial digital video data stream

Hudelson et al. (US 6690428 B1)

c. Video signal recording and/or reproducing apparatus

Kuroda et al. (US 6501904 B1)

d. Optical transmission/reception system for various video signals

Murakami (US 20030099011 A1)

e. Method and apparatus for transmitting high definition television programming using a digital satellite system transport and MPEG-2 packetized elementary streams (PES)

Michener et al. (US 6323909 B1)

f. DATA RECORDING APPARATUS, DATA RECORDING METHOD, DATA RECORDING AND REPRODUCING APPARATUS, DATA RECORDING AND REPRODUCING METHOD, DATA REPRODUCING APPARATUS, DATA REPRODUCING METHOD, DATA RECORD MEDIUM, DIGITAL DATA REPRODUCING APPARATUS, DIGITAL DATA REPRODUCING METHOD, SYNCHRONIZATION DETECTING APPARATUS, AND SYNCHRONIZATION DETECTING METHOD

Isozaki et al. (US 6470142 B1)

Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher Findley whose telephone number is (571) 270-1199. The examiner can normally be reached on Monday-Friday 7:30am-5pm, Alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on (571) 272-7418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Christopher Findley/